

REMARKS/ARGUMENTS

1. Summary of the Office Action

Restriction requirement under 35 U.S.C 121.

Claims 1-3, 6, 8-9, 14-5 and 18 stand rejected under 35 U.S.C 102(e) as allegedly being anticipated by U.S. patent no. 6,488,040 (hereinafter "De Larios").

Claims 7, 11-13, 16-17, 19-21, 24-27, 29-40 and 42 stand rejected under 35 U.S.C 103(a) as allegedly being anticipated by De Larios.

Claims 3 and 21 stand rejected under 35 U.S.C 103(a) as allegedly being anticipated by De Larios in view of U.S. patent no. 6,059,893 (hereinafter "Kawasaki").

Claims 4-5, 10, 22-23, 28 and 41 stand rejected under 35 U.S.C. 103(a) as allegedly being anticipated by De Larios in view of U.S. patent no. 6,146,469 (hereinafter "Toshima").

Claims 43-45 stand rejected under 35 U.S.C 103(a) as allegedly being anticipated by Dirie in view of U.S. patent no. 5,024,968 (hereinafter "Engelsberg").

2. Response to Restriction Requirement

In response to the restriction requirement, applicants hereby elect claims 1- 45 (Group 1) for prosecution in this application. Please cancel claims 46-55 without prejudice.

3. Amendments

Claims 1, 5, 19, 23 and 37 have been amended such that the rejection will be obviated. The amendment is supported by the specification as filed. Accordingly, no new matter is added. Claims 4 and 22 have been cancelled. The Examiner is thanked for a careful review of the claims.

4. Response to § 102(e) Rejection

Applicants respectfully traverse this rejection for the reasons set out below, and ask the Examiner for reconsideration.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Claim 1, as amended, includes the step of heating the fluid prior to applying to the surface. Although De Larios discusses a method for cleaning and drying wafer surface, the reference fails to disclose or teach heating the fluid in the cleaning and drying process. Indeed, De Larios only teaches "the proximity head dries or cleans the wafer by introducing a first pressure toward the wafer surface by the use of a gas or a liquid (gas when drying and liquid when cleaning) from the inlets inputted through the plurality of source inlets" (De Larios, Col.4. Lines 49 – 53). In addition, the apparatus for cleaning and drying wafer surface taught by De Larios fails to disclose a component for heating the fluid (De Larios, Figure 2).

Therefore, De Larios fails to teach or suggest each and every element of the present claim, and so claim 1 is patentable over De Larios. Because claims 2-3, 6, 8-9, 14-5 and 18 depend from independent claim 1, they too are patentable over the cited art.

5. Response to § 103(a) Rejection

Claims 7, 11-13 and 16-17 that stand rejected under 35 U.S.C 103(a) are dependent claims, and accordingly deemed to include the amended feature of the independent claim 1 from which they depend. Because independent claim 1 is argued above to be allowable, therefore, the dependent claims are believed to be patentable for the same reasons advanced above. Accordingly, the present rejections under 35 U.S.C. §103(a) are similarly addressed.

Claims 19 and 37 have been amended such that the rejection under 35 U.S.C 103(a) will be obviated. Both claims, as amended, include the step of heating the fluid prior to applying to the surface. Consequently, because claims 20-36 and 38-42 depend from claims 19 and 37 respectively, there can be no conclusion of obviousness with respect to these claims.

Claims 4-5, 10, 22-23, 28 and 41 stand rejected under 35 U.S.C 103(a) as allegedly being anticipated by De Larios in view of Toshima. Toshima describes a conventional steam cleaning process for semiconductor wafers using ultra-pure dry steam. The steam is removed from the chamber by vacuum. On the other hand, De Larios discusses moving CMP residue by washing the wafer with a non-heated fluid and removing the fluid by suction. Obviously, De Larios and Toshima should not be combined because the use of heated, dry steam as taught by Toshima is contrary to the use of a non-heated fluid as taught by De Larios. Therefore, the claims are patentable over the cited art.

Claims 43-45 are patentable under 35 U.S.C 103(a) in view of the references cited by the Examiner. The Examiner concedes that De Larrios lacks a disclosure of using a laser such that absorption of the laser beam at the surface releases the particle from the surface. Even the additional teachings of Engelsberg do not render the present invention obvious.

Engelsberg describes a method for removing surface contaminants from the surface of a substrate that includes "the steps of constantly flowing a gas across the substrate treatment surface and the step of irradiating the surface with irradiation from a high-energy source, the irradiation characterized by an energy density and duration between that required to release surface contaminants from the substrate treatment surface and that required to alter the crystal surface of the substrate treatment surface" (Englesberg, Col. 3, Lines 1-8). Engelsberg clearly fails to anticipate the present claim 43, which describes "applying a laser beam to the surface such that absorption of the beam at the surface releases the coated particle from the surface substantially without causing the particle to explode". Engelsberg does not disclose or teach using a laser irradiation energy level that does not cause the particle to explode. In contrast, Engelsberg is only concerned about using an energy level that does not alter the crystal surface of the substrate treatment surface.

Therefore, De Larrios in view of Engelsberg fails to disclose all the elements of claim 43, and so this claim is patentable. Because claims 44 and 45 depend from independent claim 43, they too are patentable over the cited art.

In view of all the foregoing reasons, applicants respectfully submit that the present application is in condition for allowance, and such allowance is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666. If a telephone interview would in any way expedite the prosecution of the present application, the Examiner is invited to contact Jaina Chua at (408) 947-8200 ext. 213.

Respectfully submitted,

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